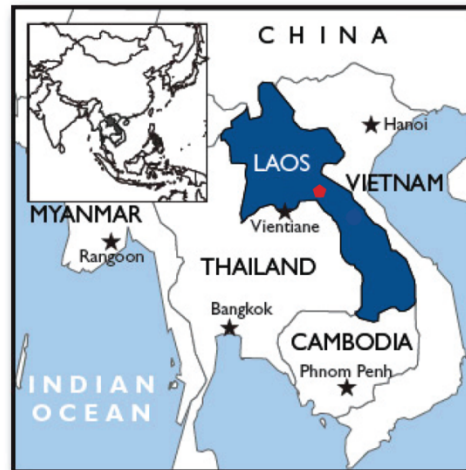


Laos – Nam Ngiep I Hydropower Project Trip Report (June 2012)

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USAID/E3 and Vientiane Embassy staff conducted a site visit to the Nam Ngiep I Hydropower Project to gain a better understanding of the environmental and social aspects of the project. This site visit was carried out as part of USAID's due diligence responsibilities under the International Financial Institutions Act, Title XIII, Section 1303(a)(3), which requires USAID to review MDB projects with potential adverse environmental and social impacts. The site visit was conducted between May 29 and June 7, 2012.



This report summarizes information obtained from the site visit; meetings with stakeholders (e.g., government and Civil Society Organizations) in Vientiane, provincial governments, and project-affected villagers downstream of the dam site in Bolikhamxay Province; and documents available to the public. The meetings focused primarily on the environmental and social aspects of the project. The report does not reflect the views of USAID or of the United States Government (USG), and USAID has not substantiated all comments.

This report is divided into the following sections:

Section 1. Nam Ngiep I Hydropower Project

- Background
- USAID review of draft Environmental and Social Impact Assessment

Section 2. Lao Government/Hydropower Sector

- Department of Water Resources
- Department of Environment and Society Impact Assessment
- Department of Forest Resources Management
- Department of Livestock and Fisheries
- Environment Protection Fund

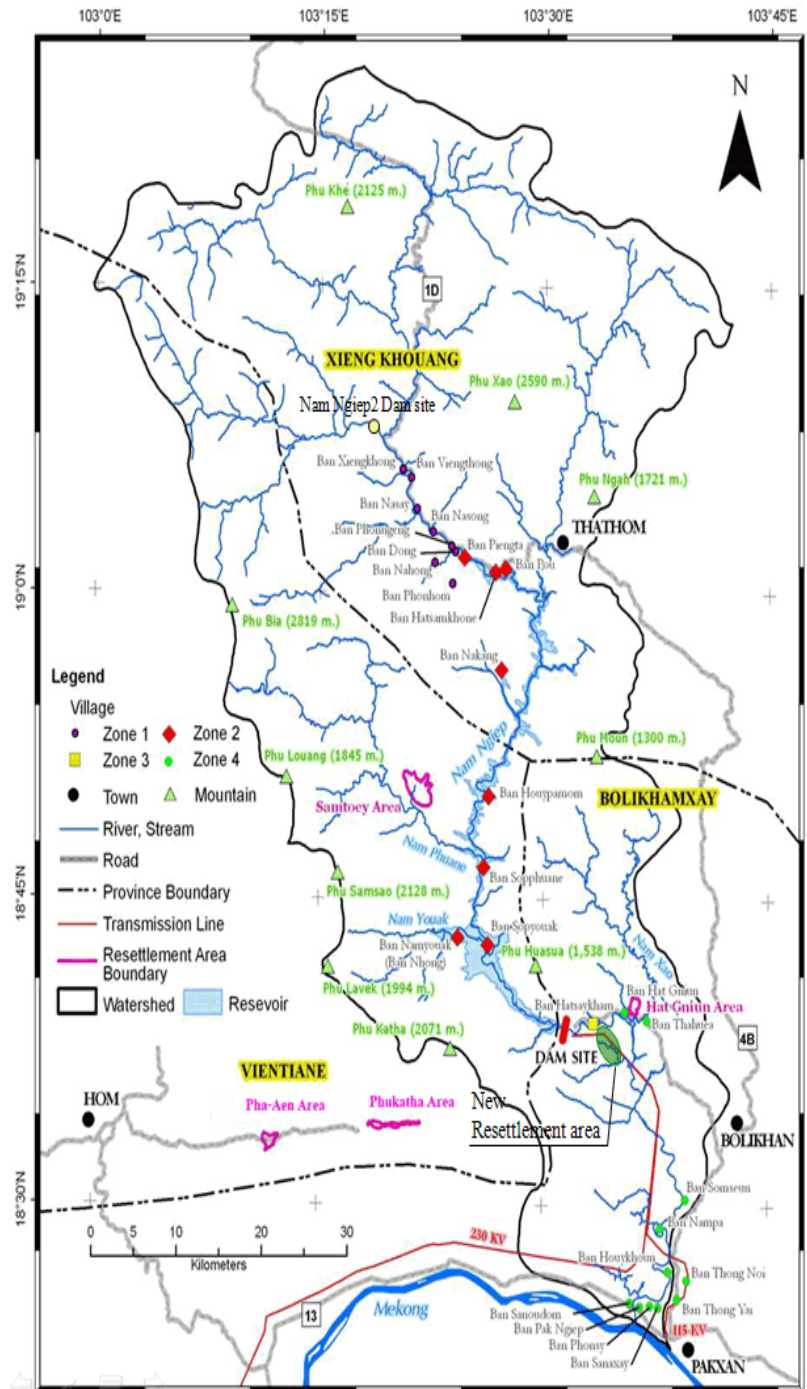
Section 3. Village meetings

Section I. Nam Ngiep I (NNI) Hydropower Project

Background: NNI is located on the Nam Ngiep, with the confluence with the Mekong about 7 km upstream of Pakxan (Bolikhamxay province), approximately 145 km from Vientiane. The project is a Build-Operate-Transfer (BOT) project that will sell to both the Electricity Generating Authority of Thailand (EGAT), and Electricite du Laos (EDL) under a concession agreement provided by the Government of Lao PDR and a Power Purchase Agreement with EGAT and EdL. NNI Power Co. Ltd. will be established under a shareholder agreement in order to sign loan agreements with lenders and develop the project. This consortium will consist of Kansai Electric Power Co. (Japan), EGAT International (Thailand) and Lao Holding State Enterprise (LHSE, Lao PDR).

The main dam will produce 272 MW for export and the re-regulating dam will produce 18 MW for domestic use. The reservoir will be approximately 70 km in length and dam height at 148 meters with an effective head of 129 meters. The project will connect to the Nabong substation and share the transmission lines with Nam Ngum 3. EDL will install one transmission line to connect to the grid in Pakxan. Construction is expected to begin in 2012 and commencement of operations in 2018.

Resettlement: It is estimated that the project will directly affect approximately 4,350 villagers and indirectly affect 13,000 villagers upstream and downstream of the dam site. Four Hmong villages will need to be resettled from the reservoir area. The four villages will be consolidated into two villages on both right and left



banks of the river downstream from the re-regulating dam. The locations of the relocation sites were chosen because the Hmong did not want to be relocated in the Lao host villages that were initially proposed.

It is recognized that the resettled villagers' livelihoods will be significantly changed from a mountainous, subsistence-based existence to a market-based one. The soil pH is very acidic at the new resettlement sites, and will need to be treated. Year-round irrigation will be available and with treatment the land should be able to produce 4.8 t/ha of rice versus the current production of 3.5 t/ha. The resettlement villagers will have access to 400 h/paddy land, 400 ha/crop land, and forests preserves for non-timber forest products (NTFP) collection. Their houses will be connected to electricity from Pakxan. In addition, schools and a medical clinic will be provided. Demonstration homes have been built.

It is thought that the women's livelihood won't change as dramatically as the men's since the women are currently working the paddy fields while the men's activities are hunting and collecting NTFP in the mountains. The resettlement action plan is still under development and will be released to the public when it is completed. Reservoir fisheries are proposed to help replace river fisheries for the resettlement villages. The reservoir will be 70 km in length and the villagers will be able to raise fingerlings, with the assistance of the developers, for release into the reservoir.

The GoL wants the project's Resettlement Management Unit (RMU) to function for 5 years after commencement of operations. During this period of time, three targets will be monitored: 1) poverty line; 2) average annual income; and 3) increase of present income. If there are still issues with resettlement villages meeting these targets after the five-year period, then the RMU will be maintained to continue assisting the resettled villagers.

USAID review of draft ESIA: USAID reviewed the draft ESIA (released in January, 2012) prior to the site visit. The review was based on the Title XIII, Section 1307 provision for adequacy of EIAs. In brief, the following points were raised with the project sponsor and ADB management so the issues could be addressed before the ESIA is determined final draft:

- The no-project alternative lacks a robust analysis. The no action scenario is a cornerstone of the EIA process and provides the baseline that enables decision makers to compare the magnitude of the environmental effects of the action alternatives.
- The baseline data for direct, indirect, and cumulative impacts analysis is inadequate. Appropriate baseline data, gathered over a sufficient period of time, is required to assess the scope of impacts and to identify prevention and/or mitigation measures. Examples of inadequate baseline data in the EIA include:
 - There was no systematic collection of data on erosion patterns and sediment discharge in the river for any of the preliminary studies. This makes it extremely difficult to estimate accurately how the dam will affect erosion and sedimentation.
 - The terrestrial ecology/wildlife survey data is five years old (from October and March, 2007) although the EIA states that these surveys will be updated during the biodiversity surveys to identify the species that will be directly impacted by

the project and unable to adapt to the new environment. This updated data is not in the EIA. Additionally, it appears only direct impacts will be analyzed, neglecting both indirect and cumulative impacts. The methodology for these surveys is not provided and there does not appear to be any surveys conducted downstream of the dam site.

- There does not appear to be data to support the conclusion that the areas of the reservoir, dam, and regulation dam are not significant for wildlife migration, breeding, or feeding.
- There does not appear to be any data to support the conclusion that construction of the dam and inundation of the reservoir will cause minimal disturbance to wildlife in the area.
- Absence of cumulative impacts analysis: Cumulative impacts must be evaluated along with the direct and indirect effects of each of the project alternatives.
 - In the Nam Ngiep watershed, there are at least six dams planned which would include temporal, spatial, and geographic boundaries that are resource receptor specific.

Section 2: Lao Government /Hydropower Sector

Hydropower development is a significant element in Lao PDR's development strategy as the scale of hydropower investments and their importance to the economy is increasing. There are approximately 75 hydropower projects in various stages of planning, construction, and operation, including eight dams proposed for the Mekong mainstem. When the World Bank (WB) and Asian Development Bank (ADB) co-financed the Nam Theun 2 hydropower project, part of the financing rationale was that their entry into the hydropower sector would elevate the environmental and social standards of all hydropower projects in Laos—existing, under construction, and future. The 2005 National Policy on Sustainable Hydropower was seen as the key component in elevating hydropower environmental and social standards. The Hydropower Policy has had limited success in its implementation. One key institution that was created through the Policy was the Water Resources and Environment Agency (WREA) which reported directly to the Prime Minister's office. In July 2011, WREA was merged with parts of the National Land Management Authority, the Geology Department, as well as the Protection and Conservation Divisions of the Department of Forestry, to form the Ministry of Environment and Natural Resources (MONRE).

There are currently 20 hydropower projects under development, with two per year slated for completion over the next 10 years. Currently, $\frac{3}{4}$ of the government's revenue comes from commodities and, over time, 80 percent of the government's revenue will be from hydropower. Currently the utilization of hydropower is less than optimal because there is no national grid and, as a result, efficiency is lost. The ADB is supporting a 500 KV backbone grid to allow for better efficiency and utilization of power and to allow for market trading of power that links into the Greater Mekong Subregion grid. In the future it will be important for the GoL to receive adequate revenue from hydropower generation, given that Thailand is moving from costly coal use to purchasing cheaper electricity from Laos.

Department of Water Resources

The Department of Water Resources (DWR) is comprised of 6 divisions with 40 staff total. The technical divisions include training and data information, regulation, and river basin management.

The DWR is currently involved in the following activities:

- Developing a capacity building strategy to cover the period from 2011 to 2015.
- Providing technical input into the ESIA Department during project reviews.
- Monitoring and Data Collection
 - Monitoring activities are coordinated with provincial and district authorities. Usually the teams are sent out when requested by local authorities. The DWR does not have the budget to conduct routine monitoring missions. However, there are exceptions when the WB and/or ADB are involved in providing support. For example, the WB/ADB will provide routine monitoring for the Xe Bang Fai basin. There are no provisions in the Concession Agreements for projects to provide resources to MONRE to conduct routine monitoring missions.
 - The project does contribute resources for watershed management associated with the EIA, but these resources are limited and are not specific to the budget, which does not allow for routine monitoring.
 - MONRE does have a water lab for analyzing water samples collected during the monitoring trips.
 - There is a data collection plan for the tributaries, to be conducted by local teams once resources become available.

The Water Law (1999) is outdated and is being revised with the support of the WB and the ADB. The new Water Law is expected to be approved by 2013. The DWR views revising the water law as very important since there are a number of projects (e.g. mining, hydropower, plantations) in Laos that depend on water resources and, thus, proper water management and coordination among the various sectors. The new law will also contain a provision on environmental flows that WREA had been working on in previous years.

River Basin Management Committee

- The decree establishing River Basin Management Committees (RBC) was approved two years ago. The RBCs fall under the responsibility of the Department of Water Resources. The RBC's main roles are as a coordinating body among water users and as a mediator for water conflicts. Both of these roles will be reflected in a draft action strategy plan on water usage, quality, and quantity. To date, there have only been minor conflicts due to drought and flooding issues but the RBC is looking towards the future in terms of potential conflict over water quantity/quality that may occur given the growing number of water users in each basin.
- An Integrated Water Resources Management policy was developed for approval last year but was rejected by the GoL. The scope of the proposed policy was too broad and consequently could not be applied. For example—large-scale projects would be under the purview of national authorities and small-scale projects would fall to the provincial authorities, but “large-scale” and “small-scale” were not defined. The RBC is learning as they go along and are working with consultants and undertaking study site visits.

- The RBC budget is limited. In principle, the budget should come from MONRE but this has not been occurring, so they are exploring other ways of receiving funds, such as creating a fund to collect contributions from projects developing in the watershed. However, whether this idea is practical will depend upon the outcome of the ADB technical assistance (TA), which is currently examining the royalty taxes of the GoL to determine if they can be used for financing RBC activities.
- At this time, the RBC's policy is to work on projects in river basins that have already been developed, instead of working with undeveloped basins to determine the best development approaches. Management regimes are being developed for five river basins. The WB and ADB are supporting Nam Ngum, Nam Theun-Kading, Xe Bang Fei, and the Xe Band Hieng. Other river basins where RBCs need to be established include Nam Ou, Nam Ton, Nam Ngiep, Sekong, and Sedong. However, at this time, there are no resources for their establishment. DWR is looking for external support to develop RBC for these basins.
- The ABD has been providing support to the Nam Ngum River Basin Management Committee for a number of years. The Committee has yet to begin functioning. However, at this time, there are currently 3-5 staff on the Nam Ngum RBC with plans to include more from the provinces. Backgrounds vary among staff and currently there is only one staff member with a water resources background.

Key challenges for DWR include:

- Limited resources and capacity development for staff
- Timely approval of the revised water law and promulgation of regulations/sub-regulations for its implementation.
- The ability to effectively manage river basins since there are many sectors that are developing within a single basin with overlapping water interests (e.g. mining, hydropower, plantations). The limited budget to support river basin management for both tributaries and the main stem further impedes effective management of the basins.

Department for Environment and Society Impact Assessment (ESIA) – The ESIA Department previously housed in WREA is now located in MONRE. During the site visit, we were not able to meet with ESIA staff but the points below were raised during our other conversations with various stakeholders.

- It is reported that the ESIA Department is having problems using resources, even the small amounts (\$20,000-\$25,000) provided by the WB.
- The Government of Finland-funded consultant is still providing technical support to ESIA and is working hand in hand with the department on developing social and environmental obligations, training, and checklists.
- The ESIA Department is looking for support from the International Finance Corporation (IFC) for negotiation training to improve environmental and social obligations and capacity building.
- Although the 2005 National Policy on Sustainable Hydropower stated that EIAs shall be made available to the public, EIAs (with the exception of WB/ADB projects) are still not available. One reason provided is that the GoL is still trying to establish the policy and structural mechanisms to be able to release the EIAs to the public.

- Only the EIA summaries have to be translated into Lao. However, the full EIAs are still in English which is difficult for Lao staff to fully understand and is an impediment to their technical review process.

Department of Forest Resources Management – Forest management has also been reorganized and is now under two separate ministries. The conservation and protection forest components have been moved to MONRE but production forests still are under the Ministry of Agriculture and Forestry (MAF).

- Current GoL goals are to increase forest cover to 65 percent by 2015 and to 80 percent by 2020. Current forest cover is approximately 50 percent, which also includes production forest. There are approximately 500,000 ha of plantations in Laos.
- Between 1980 and 2011, 2.5 million ha of forest have been rehabilitated but 3.9 million ha still remain to be rehabilitated. Of the 3.9 million ha, 2 million are in protection forests.
- The Department's goal is to pursue economic and social development of the local people as an integral component of forest management.
- A master plan for the new department is in the process of development, but funds are lacking for the needed forest surveys to inform the master plan.
- The Prime Ministerial Decree on Protection Forests requires that projects pay for replanting trees that are removed. Additionally, it will be important to manage upstream forests to protect the watershed and water resources. In this respect, two hydropower projects have been studied, Nam Mang and Nam Leuk, and based on the lessons learned from these projects, a Payment for Ecosystem Services (PES) system will be proposed to the GoL. This will be based on Vietnam's PES system, which has an annual target of 200,000 kip/ha.
- Concession Agreements only mention the catchment area and do not mention upstream forest protection. This results in hydropower projects supporting only the catchment area, despite the need to ensure effective livelihood solutions upstream of the catchment area, so that villagers will not encroach into the forest.
- The Department will establish and provide staff for small stations in charge of patrolling the forests and working with villagers.
- To accomplish the Department's objectives, a special national steering committee staffed with concerned national ministries and provincial authorities will be established. The objectives will be implemented in the field through the establishment of field units to manage agriculture and forestry. It is expected that for the initial 4-5 years there will be substantial spending to cover land use planning, demarcation for catchment areas, and development of forest regulations. After this period of time, it is expected that the expenses will decrease. These activities will be done on a project-by-project, not basin-wide, basis.

Department of Livestock and Fisheries – The Department of Livestock and Fisheries of the Ministry of Agriculture and Forestry (MAF) is comprised of three technical areas —the livestock, veterinary, and fisheries (aquaculture) divisions. The fisheries sector was only recognized as important by the Lao government in 2000, when the Living Aquatic Resources Research Centre (LAREC) was established. LAREC is mainly supported through the MRC.

- The Fisheries division has eight staff, and there is a request to the government for seven more. The challenges facing the fisheries division is lack of capacity development in the sector more broadly. The fisheries sector is not developed within Laos, which is reflected by the fact that there is no faculty of fisheries at Lao National University. Students need to go to other countries (e.g. Thailand) for training (Asian Institute of Technology (AIT)). The problem with going to Thailand is that the classes are in English and, unlike Vietnam, which provides training before going to AIT, Laos only has a three month bridge program in BKK.
- MONRE does not have any tools to help assess fisheries impact in EIAs. LAReC is involved in EIA reviews/inputs.
- The value of fisheries is always undervalued. Energy sells at a higher price, but the intrinsic value of fisheries is higher than electricity.

Environment Protection Fund (EPF) – The EPF was created in 2005 through the National Policy on Sustainable Hydropower. The EPF was created as the mechanism that would receive a certain portion of the revenues from each hydropower project to support nation-wide environmental protection and conservation efforts in the country. The Fund was established with \$5 million from the ADB and \$4 million from the WB. The Fund has five windows of lending: policy implementation/capacity enhancement, community and biodiversity investment, pollution control, water management, and sustainable land management. Since the establishment of the Fund, more than 200 sub-grants have been given out to three provinces (Bolikhamsay, Khammouan, and Savannakhet) that are pilot areas supported by the WB.

The EPF is supported by 17 staff, including a director. In addition to providing grant money, EPF is also involved in the following activities:

- Through a WB TA activity, the EPF is working with the Ministry of Energy and Mines on revising the National Policy on Sustainable Hydropower. Since the 2005 policy came into effect, a number of its provisions have never been implemented—for various political and technical reasons. For example, the EPF has not received funds from hydropower projects, because a decision has never been made as to the portion of revenue each hydropower project should contribute. In addition, the government has not yet determined whether the contribution should come directly from the project's revenue or whether it should from the royalties and taxes paid to the government. This issue is further complicated by the fact that the Concession Agreements do not include provisions for this payment. As part of the policy revision, the TA is examining the royalty taxes to determine whether these taxes can be used to support the EPF. At this point, all revenue collected by the Ministry of Finance goes directly into the national budget. The hydropower policy is being revised and is reported to be in its second draft, though it has not been released to the public for comments.
- Priorities for EPF activities are driven by the provinces and international donors. The priorities primarily focus on high-profile projects, which explains why there is so much emphasis on NT2 and its associated provinces, as opposed to the Nam Ou watershed, which has a proposed cascade of eight hydropower projects in an area with a population of ethnic minorities and a level of biodiversity equal to that of NT2. Other EPF activities include:
 - Providing capacity to the ESIA department,

- Providing resources for creating the River Basin Management Committees,
- Working with MONRE to determine how to receive NT2 resources for environmental and social activities,
- Working on developing guidelines for public involvement, and
- Preparing a plan for road construction through the Nam Et Phou protected area, a critical landscape for tigers.
- EPF is a semi-autonomous government entity, so it can manage its own budget. However, there is nothing in its mandate for monitoring and ensuring compliance with project Environmental Management Plans.
- EPF is trying to establish a Social Impact Management Unit that will be responsible for project-affected areas and resettlement. It is important for this Unit to be integrated into a GoL agency at the provincial level, since there is not a national level ministry that is specifically accountable for social impacts. As part of this process, the EPF staff visited a Chinese project to understand their approach to resettlement issues and their methods for responding to resettlement concerns. Based on this visit, it is thought that the Chinese approach could be a model for the proposed Social Impact Management Unit. Currently, EPF provides small grants to district/provincial authorities to solve grievances. One common element with the project's involuntary resettlements is that the change from a subsistence-based livelihood to one that is market-based is a significant and very difficult challenge. This difficulty is recognized and a strategy needs to be developed that is not only top-down but also bottom-up, with strong community ownership.
 - During discussions, several stakeholders raised concerns about NT2 resettlement since apparently NT2's Resettlement Management Unit (RMU) has completed its mandate. However, problems still remain and these grievances need to be resolved. One example provided concerned the livelihood development projects, which have not yet transferred knowledge of reservoir fisheries to resettled communities.
 - There are also a number of complaints with Nam Ngum 2 resettlement communities.

Environment/Social Funds –

Since the EPF was created, there have been a number of new funds proposed to be supported through projects' revenue—e.g. hydropower, mining. In addition to EPF, there are the following funds:

- The Forest Protection Decree 38, which creates the Forest Resource Development Fund. Seven sources (e.g. individuals, companies) of revenue can contribute to this fund for forest management activities. It was reported that the fund is supposed to receive 1 percent of total hydropower income.
- The Natural Resource Fund was raised in discussions but no details were provided. The mining industry pays a natural resource fee whereas the hydropower industry does not.

There are discussions within MONRE concerning the best approach to managing these three separate funds, such as combining into one Fund with separate windows.

Section 3 –Village meetings

All of the villagers we met with were aware of the project. Based on discussions, it appears that villagers living closer to the river were more dependent upon its resources than villagers who lived farther away.

Village 1 –

Officials have come to the village to discuss the project. They explained to the villagers that they would not be able to use the Nam Ngiep river for consumption in the future and that the fish population will be reduced. As part of compensation, the project will provide the village with a water well. Fishers from this village routinely catch from 1.5 to 5 kg fish/day. The Nam Ngiep is fished all year round although it is more difficult to fish during the rainy season, because of the high water levels. Although there were no specifics, villagers said that fish migrate beyond their village while going up the Nam Ngiep. The catch is primarily for consumption but is also sold to the market when the catch is high. Villagers were not concerned about the impacts of the project on fisheries, because their village is also close to the Nam Pa, a tributary of the Nam Ngiep, which they will still be able to fish.

The villagers also have riverbank gardens to grow vegetables. They are aware that their riverbank gardens will be impacted, but they believe they will be able to set up new gardens next to their homes. However, they do not think these gardens will be as productive as their riverbank gardens because the riverbank soils are enriched during the floods. To compensate, they will need to use dung to improve the soil. The project will compensate villagers for their loss of riverbank gardens for 1-3 years until they adapt to the new garden. Villagers grow both upland and lowland rice. They will still be able to grow rice when the project is completed.

One villager felt that there were two other villages that will be more impacted than their village. However, details were not provided.

Village 2 –

This village moved from close to the Nam Ngiep to their current location 15 years ago. The reason for the move seemed to be a combination of the GoL policy of consolidating villages and the flooding that occurred every year. The fishers still depend on the Nam Ngiep for fish; they fish daily using nets. Their catch is usually not enough for both consumption and to sell to the market. There are periods of time when fish is purchased from the market. From their knowledge, the fish population in the Nam Ngiep is reduced compared to past years. There are other rivers in the area and they were aware of the Nam Pa and that those rivers could also be fished. The village also uses a well for water instead of the river. They have known about the proposed dam for at least four years.

Village 3 –

The villagers depend on the Nam Ngiep for fisheries and vegetables. Some of the villagers have riverbank gardens. Fishing occurs primarily during the dry season (January-April) when the water level is low. During the rainy season, the fish are found in the rice fields.

It is also during the rainy season, when the Mekong floods, that the waters back up into the tributaries and floods villagers' rice fields. Some of the villagers believe that when the dam is built it will be more dangerous for the villagers because of increased flooding. The villagers had heard that when the Theun Hinboun Dam had to release water during storms, many downstream villages were flooded.

The project owner has come to the village to discuss the project. This village is further away from the Nam Ngiep and will not be affected. They also have many other places to fish in addition to the Nam Ngiep.

The villagers mentioned that two other villages would be more affected. One village because they have a lot of buffalo that are watered from the Nam Ngiep, and the other village which is about one km from the river, which has many riverbank gardens.